

Teachers' notes

Lesson notes

Surface Area

Materials

Objective 1: To find the surface areas of prisms and cylinders using nets

Surface Area

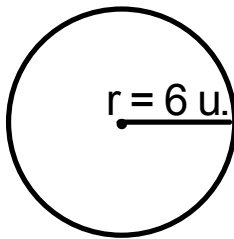


Warm-up

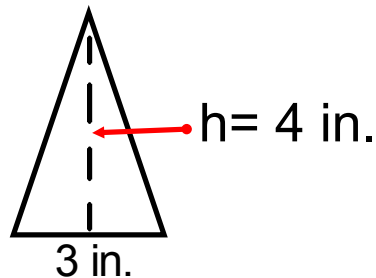


1. Find the Area of each figure:

a.



b.



Can I use a formula?

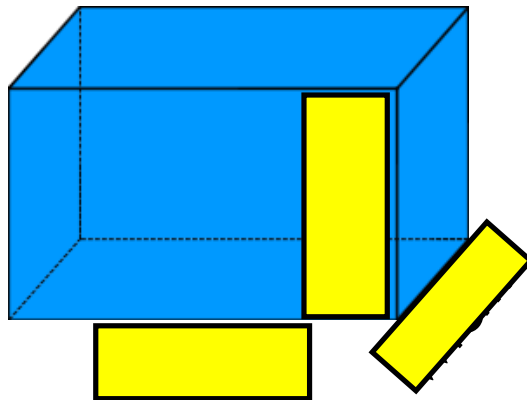
2. $3x + 6 - x - 2 = 10$

3. Find the volume of a rectangular prism with the dimensions 4 by 6 by 7.

If I make the rectangular prism into a triangular prism what would the volume be?

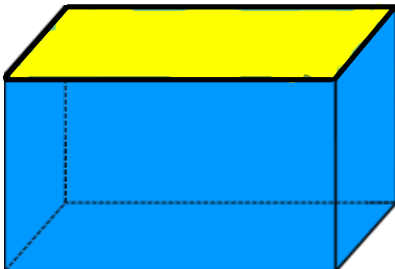
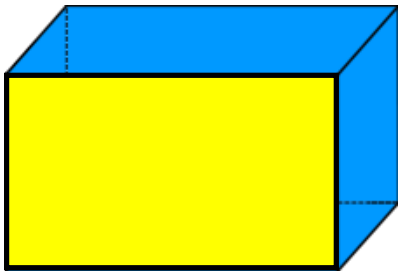
What is each part called?

click to check



How would you find the
area of each face?

click to check



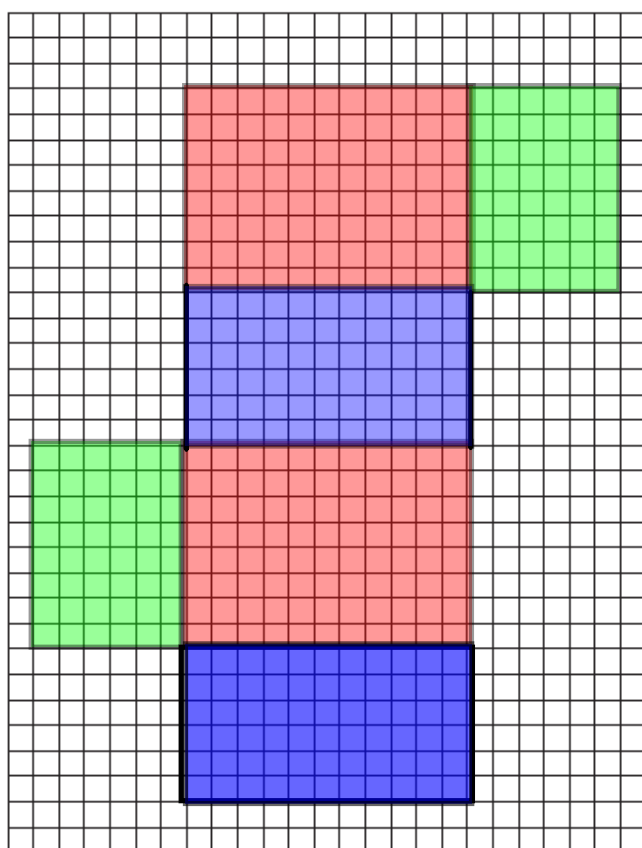
Surface Area



Whole Class

Investigating the Concept

1. Describe what makes up the "surface area" of the prism.



What is the area of each rectangle?

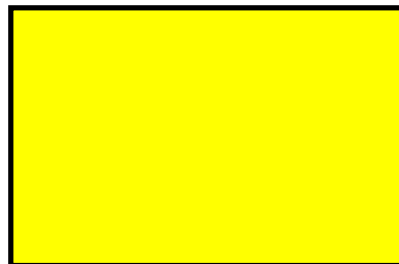
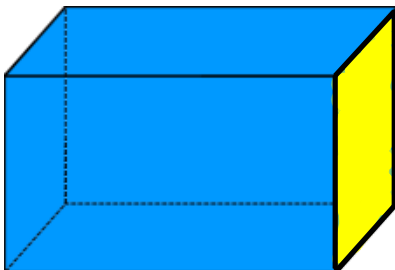
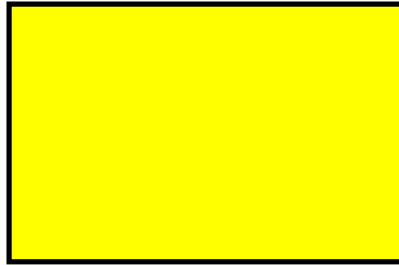
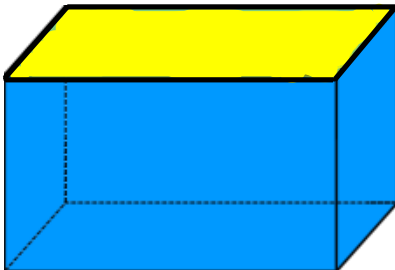
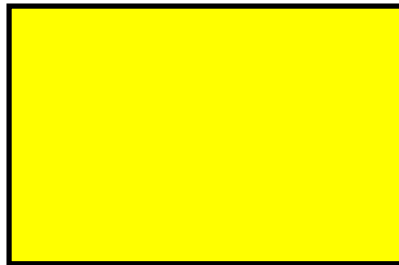
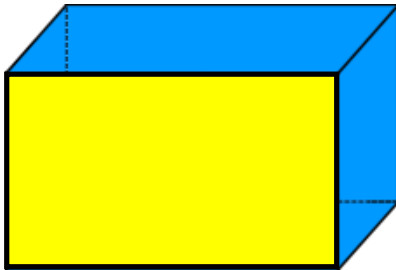
How do you know?

How can you use the areas of these rectangles to find the surface area of the prism?

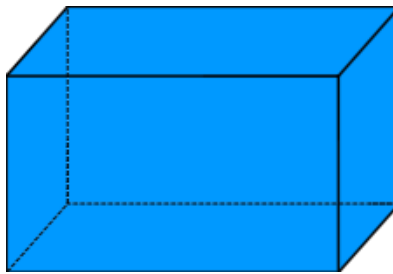
What do you notice about the rectangles? Are any alike?

How many faces of
each are there?

click to
check



You know how to find the area of each face. You know how many congruent faces there are. So how do you find the surface area of the entire rectangular prism?



your hypothesis

erase to check

Surface Area



Whole Class

Understand It!

The flat surfaces of a solid figure can be “unfolded” to form a two-dimensional model of the figure. The surface area of the solid figure is the sum of the areas of the flat surfaces.

Try a method on your own.

Share your method with a partner.

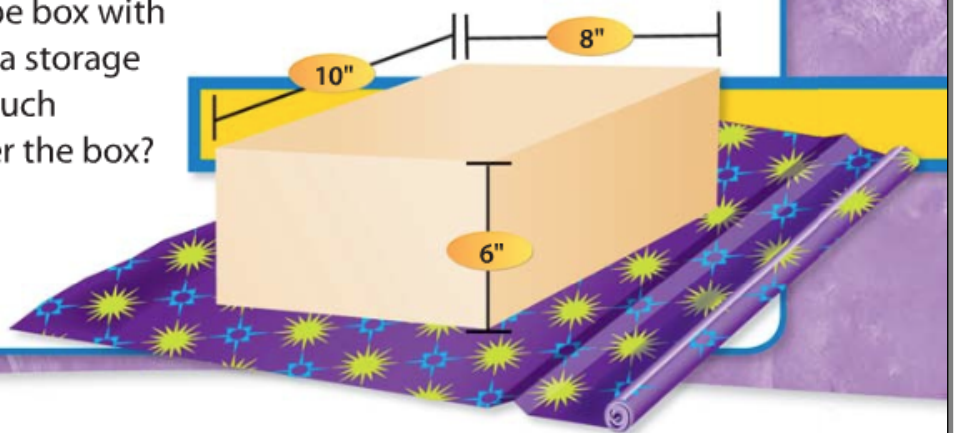
Share out as a class and compare to the two methods on the next page.

Surface Area

How can you find the surface area of a polyhedron?

Rufus wants to cover a shoe box with decorative paper to make a storage box for his photos. How much paper will he need to cover the box?

Find the surface area (SA) of the shoe box.



Surface Area

One Way

Draw a net of the shoe box or rectangular prism and find the area of each face.

Then add the areas to find the surface area of the box.



$$SA = 60 + 80 + 60 + 80 + 48 + 48$$

$$SA = 376 \text{ in}^2$$

Cornelius needs 376 square inches of paper to cover the box.

Or use the visual model.

Another Way

Use a formula to find the total surface area of the shoe box.

Notice how the opposite pairs of sides of the shoe box have the same area.

$$SA = 2(\ell w) + 2(wh) + 2(\ell h)$$

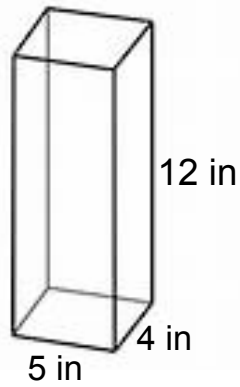
$$SA = 2(80) + 2(48) + 2(60)$$

$$SA = 376 \text{ in}^2$$

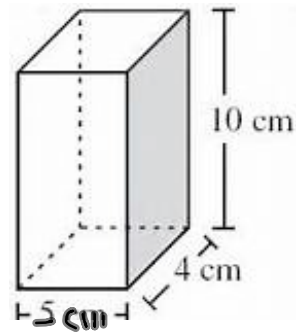
Cornelius needs 376 square inches of paper to cover the box.

Let's Practice!

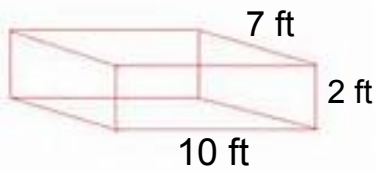
1)



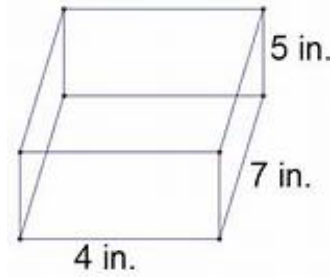
2)



3)



4)



What did you notice happened to the surface area when you doubled the sides?

Why do you think it did not double?

WARM-UP

Find the surface area of the rectangular prism and explain every step!

